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INFECTIOUS ABORTION IN COWS

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With the exception of tuberculosis, no disease of cattle is of so much economic importance in California at this time as infectious abortion. The direct loss from calves dropped too early to live, and from decreased milk production, is great; but the indirect loss from such conditions as sterility, retained after-birth, and some ill-defined calf troubles, which evidence indicates are closely associated with abortion infection, rival the calf and milk loss. A knowledge of the cause, means of infection, manner of spread and the proper application of remedial measures recommended will aid materially in reducing not only the number of abortions but also the allied troubles.

The cause of infectious abortion is a germ which can be found in large numbers in the discharges from the womb, in the afterbirth, in the aborted fetus and, in many cases, in the milk of infected cows. Any treatment applied must be directed toward the destruction of the germs from these sources of distribution and toward the keeping of healthy cows from coming in contact with the infected ones.

Symptoms.—The expulsion of the immature fetus at any period of gestation is usually the most prominent symptom noticed. However, there may be observed the usual symptoms of normal calving three or four days prior to the actual abortion. Following the abortion a dirty, yellowish-gray, flaky discharge, continuing for varying lengths of time, is usually present. The afterbirth is frequently retained, especially in cows that abort after the sixth month of pregnancy, whereas in abortions occurring during the third or fourth month the fetus may be expelled with the fetal envelopes intact. In all herds wherein abortion infection exists there are such allied conditions as sterility in virgin heifers, sterility following abortions, retained afterbirths after normally and prematurely born calves, inflammation of the womb, and calf scours and pneumonia. These latter conditions are considered by many investigators to be symptoms of abortion just as much as the phenomenon of abortion. Viewed from this basis there are very few dairy herds that are free from the disease.

It is at times difficult to determine whether a single abortion is of the infectious type. It may be considered by some that an abortion now and then is to be expected from other causes. However, no

abortion is a normal condition and in the light of our present knowledge all such cases should be handled as an abortion induced by infection. If several abortions occur during the season and there are also retained afterbirths and calf troubles it is sufficient evidence that the infectious form exists. There are laboratory tests that can be made upon the blood of cows which can be relied upon to determine whether the infection is present in the herd, but which are not sufficiently developed to pick out all of the individual cows that have the disease in their system.

The Veterinary Division of the University will make these tests upon the blood free of charge, in certain instances where the tests seem to be especially desirable. Before any samples of blood are submitted, however, the matter should be taken up by letter to the Veterinary Division and special arrangements for making the tests made.

Abortion is spread by the discharges from infected cows. The germs in these discharges may enter the healthy animals in at least two important ways, viz., by the digestive tract, and by the vagina through service to a bull contaminated with the discharges. The digestive tract is a very important route. Healthy cows that have access to water, feed and pastures contaminated with the discharges from an infected cow are likely to contract the disease. Likewise floors, stanchions and cows upon which the discharge has lodged may be licked by the healthy cows and the germs taken into the digestive tract.

The experimental evidence indicates that the bull is only a mechanical carrier of the germs. After serving a cow which still has a discharge or the germs in the vagina, he may mechanically carry the infection to the next healthy cow to which he is served.

PREVENTION AND TREATMENT

Drugs and Vaccines.—At present there is no known remedy for curing or preventing infectious abortion. Many different drugs have been recommended in the past and are still being advertised. The dairyman would do well to disregard the alluring statements made in the advertising of these remedies and save the money for approved methods of handling the abortion problem. Vaccines, bacterins and serums are also advertised, but the use of these is at present only in the experimental stage. The claims made for them by some people are unwarranted. The principles of immunization by vaccines, etc., are, no doubt, correct and something of this nature may be developed in the near future. It is characteristic of the abortion disease to be rampant in some herds and less virulent in others. The same may occur in any individual herd at different times. Cows affected have a tendency to acquire immunity and some, although infected, never abort; many abort only once, and only a small percentage abort the second and third time. The value of many advertised drugs and vaccines is based upon this natural tendency.

Treatment of the Cow.—The dairyman should have a sanitary box stall or a small barn with three or four sanitary stalls which can be used for a hospital. At the first indication that an abortion is likely to occur the cow should be isolated from the herd. When

the abortion has occurred, the afterbirth, fetus and soiled litter should be burned or buried deeply. If the afterbirth is retained a veterinarian should be called unless the owner thoroughly understands the manner of removal. At no time should the vagina or uterus be entered with the hand until the root of the tail and vulva are cleansed with soap and water, followed by the application of a disinfectant solution, such as eight tablespoonfuls of cresol compound in a gallon of water or by the use of 1-1000 corrosive sublimate solution. The finger nails should be trimmed and the hands and nails disinfected in a like solution.

Douching after an abortion or removal of the afterbirth, is of doubtful value. The introduction of disinfectants may do considerable harm. If *any* douche is given it should be for the purpose of washing out the accumulated discharge and not for disinfection of the genital passages. It is safer for the untrained to inject nothing into the uterus and to confine the douche to the vagina only. The best solution for this purpose can be made of four tablespoonfuls of common salt added to a gallon of clean, preferably boiled, warm water. It may be introduced into the vagina through a soft rubber horse stomach tube with a funnel in its elevated end. The tube should be soaked in one of the above disinfectants for at least ten minutes after use and before using on any other cow.

External disinfection of the cows that have aborted is the most important part of the treatment of the cow. This will prevent the spread of the abortion germs to other cows and prevent other harmful germs from entering the genital passages. These passages are in a weakened condition at such periods and harmful or fatal infection may take place.

As long as a discharge soils the tail of any cow in the herd, whether a known aborter or not, the external parts should be disinfected. This may be accomplished by using one of the two disinfectant solutions mentioned above. The solution should be applied twice a day to the rump, hind legs, escutcheon, vulva and all of the tail. Keep the cow away from others for several days after she has cleaned up and do not breed her again for at least sixty days. It requires time for the womb to become normal again. Keep in mind, also, that the main factors in controlling infectious abortion effectively are to kill the germs in the discharge, and to keep healthy cows from coming in contact with these discharges.

Treatment of the Bull.—If the same bull is used for all of the cows his sheath should be disinfected before and after each service with $\frac{1}{2}$ per cent compound solution of cresol, two teaspoonfuls to three pints of water. Clip the long hairs of the prepuce and sheath. Use a tube and funnel or an ordinary household douche bag. Insert the tube into the prepuce and hold it so as to prevent the escape of the disinfectant until the sack is filled. The outside of the sheath should also be sponged with the disinfectant.

Treatment of the Premises.—The first factor in the prevention of disease is to have barns so constructed that there is plenty of light, sunshine and air. The opposite of these conditions aids in harboring and transmitting the germs of disease. Frequently sweep ceilings, walls, stanchions and floors, and apply strong disinfectants with a

spray pump. The interior should be covered with whitewash, to each gallon of which should be added four ounces of chloride of lime, once or twice a year, and especially after any attack of an infectious disease.

Treatment of the Herd.—The practice of selling all of the cows that abort is wrong. No cow should be sacrificed for meat unless she has been proved unprofitable from the dairy standpoint. On the other hand, no unprofitable cow should be retained in the herd and an *effort* should be made to feed only those that pay their way. A cow that has the abortion infection has a tendency to develop an immunity. If she is properly cared for following the abortion she may breed regularly thereafter. If she were sold because she aborted she probably would have to be replaced with a cow of unknown history or with a non-infected cow which may acquire the infection, abort, and bring the situation to the same point that it was before selling. The best plan seems to be to retain the aborters, giving them a fair chance to breed before disposing of them, and raise the heifer calves to keep the herd up to the required number.

The carrying out of the aforementioned suggestions for the suppression of infectious abortion may seem an arduous task. It is the price, however, that has been paid by many breeders and dairymen for success.

Abortion in Range Cattle.—The extension of infectious abortion to cattle ranges is becoming an important economic problem in this as well as in other states. The recommendations given above for its control in dairy herds are not all practical to apply to cattle on the ranges. In view of this it is strongly advised that special efforts be made to prevent the introduction of the disease to the range. Since the principal means of infecting the range is through the turning on of bulls and "cull" cows from dairy herds it is evident that the best means of prevention is to discontinue this practice.